Fact Sheet

Aquifer Protection Permit
Place ID 2058, LTF 46970
SIGNIFICANT AMENDMENT
BHP COPPER, INC. – SAN MANUEL MINE

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an aquifer protection permit for the subject facility that covers the life of the facility, including operational, closure, and post closure periods unless suspended or revoked pursuant to Arizona Administrative Code (A.A.C.) R18-9-A213. This document gives pertinent information concerning the issuance of the permit. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards (AWQS) at the Point of Compliance (POC); and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). BADCT's purpose is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., the local subsurface geology), to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer or to prevent pollutants from reaching the aquifer.

I. FACILITY INFORMATION

Name and Location

Permittee's Name:	BHP Copper, Inc. (BHP)
Mailing Address:	PO Box M San Manuel, AZ 85631
Facility Name and Location:	San Manuel Mine 200 South Veterans Memorial Blvd. San Manuel, AZ 85631

Regulatory Status

- BHP Copper operated the San Manuel Mine in accordance with the ADEQ groundwater regulations, including the APP programs and pre-APP groundwater programs. The San Manuel Mine had the following permits related to groundwater and surface water:
  - A Notice of Disposal (NOD) was issued in 1984 by the Arizona Department of Health Services (ADHS). The NOD covered the operation of the underground mine, the proposed open pit/heap leach operation, and the proposed in-situ leach operation.
  - A Groundwater Quality Protection Permit (GWQPP) No. G-0058-11 was issued for the San Manuel Mine on April 19, 1989, by ADEQ. The GWQPP covered the operation of the Solvent Extraction-Electrowinning (SX-EW) Facilities, Heap Leach operation and pad expansion, process ponds, chemical storage and spill containment, storm water runoff controls, and domestic sewage disposal.

- APP No. 100421 was issued by ADEQ to the Mine on June 6, 1991. It covered the SX-EW and Heap Leach operations, the process ponds, and spill containment.
- On July 22, 2003, existing APP No. 100421 was amended to allow the interim transfer of spent drain down solution from the Heap into the former in-situ leach operation via the No. 1 Shaft. The "Other" permit amendment also addressed transfer of spent drain down solution from the heap to the surface of the No. 4 Waste Rock Dump within the open pit.
- The U.S. Environmental Protection Agency (EPA) issued an Underground Injection Control (UIC) Permit (Facility ID Number AZD001886597) for the in-situ leach operation. The permit covered the operation of injection and recovery wells. Injection and recovery operations in the in-situ leach field ceased on March 14, 2002. Only one injection well (No. 1 Shaft) was listed as active for the 2003 calendar year. The No. 1 Shaft was backfilled and capped with a concrete cover in 2005. In February 2006, the annual report for the 2005 calendar year listed all injection or recovery wells as inactive and the No. 1 Shaft as abandoned.
- On January 31, 2001, BHP filed a Notice of Intent for coverage of non-point source surface water runoff from the Mine Site as authorized by Multi-Sector General Permit (MSGP) program. NPDES permit AZR05B412 was issued to BHP by EPA Region 9 in 2001.

- The Mine Site is in compliance with environmental programs administered by ADEQ Water Quality, ADEQ Solid Waste, the EPA, the Arizona Department of Water Resources, the Arizona State Mine Inspectors Office, and other agencies. Listed below is a brief discussion of the compliance history of the facility, including the history of groundwater compliance, violations, and ongoing enforcement actions.
  - For the APP compliance monitoring and reporting activities, BHP submits quarterly "Self-monitoring Report Forms", analytical reports, and site inspection records to the ADEQ Water Compliance Section, Water Quality Data Unit.
  - For the ADEQ Solid Waste program, BHP submits an annual report.
  - For the EPA UIC permit program, BHP submitted an annual report to the EPA. The last report was submitted in February 2006 for the 2005 calendar year.
  - For the EPA MSG permit, BHP has submitted 12 quarterly reports (for years 2, 4, and 5 of the program).
  - On July 20, 1998, the ADEQ Water Quality Enforcement Unit issued a Notice of Violation (NOV) to BHP for a spill that occurred on July 7, 1998, from the Heap Leach Facility. BHP addressed the issues identified in the NOV and on January 19, 1999, the Water Quality Enforcement Unit concurred that no further remedial action was warranted. The ADEQ considers the NOV Required Corrective Actions section to be completed and the NOV was closed.

- Listed below is a brief discussion of the APP permit history: date application received, date permit issued, dates of any previous significant and/or other

amendments, including ownership transfers.

- San Manuel submitted an application for an APP for the Mine Site to ADEQ on February 20, 1991. This operations APP application included the Heap Leach Facility, SX-EW Plant, and three process ponds. APP No. P-100421 was issued on June 6, 1991.
- Ambient water quality for Point of Compliance well CON E-3 was established from March 1992 to February 1993.
- Ownership of San Manuel Operations transferred from Magma Copper Company to BHP Sub Inc., a wholly owned subsidiary of Broken Hill Proprietary Company Ltd. (BHP) of Australia in January 1996. Subsequently, BHP Sub Inc. merged into Magma Copper Company and its name changed to BHP Copper Inc. The APP was transferred to BHP Copper Inc, a subsidiary of BHP Limited (formerly Broken Hill Proprietary Company Ltd). On June 29, 2001, BHP Billiton Limited (previously known as BHP Limited), an Australian listed company, and BHP Billiton Plc (previously known as Billiton Plc), a UK listed company, entered into a Dual Listed Companies (DLC) merger. The effect of the DLC merger is that BHP Billiton Limited and its subsidiaries (the BHP Billiton Limited Group) and BHP Billiton Plc and its subsidiaries (the BHP Billiton Plc Group) operate together as a single economic entity (the BHP Billiton Group), with neither assuming a dominant role.
- On April 1, 1999, BHP filed an application with ADEQ, WPS-Mining Unit for an area-wide APP. This application addressed operating APP facilities that were not covered by APP No. 100421. The application was deemed "administratively complete" by ADEQ and was subject to technical review when the public announcement of closure of the Mine Site was made by BHP on January 22, 2002.
- On April 15, 2002, BHP filed an Interim Work Plan to define ongoing compliance and baseline monitoring activities prior to issuance of the area-wide APP application for closure of the Mine Site. Compliance monitoring requirements for the amended permit included process solution analyses, pond levels, physical inspections (e.g., berms, liners, and pumps), spill containment measures, and Point-of-Compliance groundwater analyses. Baseline monitoring activities included groundwater level measurements in perimeter wells and the No. 5 Shaft, quarterly water quality assessment of the Heap PLS drain down solution, the No. 5 Shaft, BF-2, BF-3 and CR-2. Water pressure measurements were to be uploaded from BF-1 and No. 5 Shaft and indicator analytes were taken from No. 5 Shaft on a monthly basis.
- BHP applied for a "Significant Amendment" on April 16, 2002 (for the Diversion Channel), but the amendment application was later withdrawn on May 6, 2004, in order to incorporate the Diversion Channel into the area-wide APP application for closure.
- BHP submitted a Closure Plan Demonstration and Compliance Schedule to ADEQ on July 15, 2003 that addressed the surface and underground closure activities and provided a schedule for future submittals to ADEQ.
- ADEQ issued an "Other Amendment" to the APP on July 22, 2003, to incorporate the No. 1 Shaft and a temporary pipeline.

- On September 25, 2003, ADEQ received a request from BHP to withdraw the 1999 area-wide APP application. The 2003-amended APP No. P-100421 for the Heap, SX-EW Plant, and process ponds was still in effect. BHP notified ADEQ that an application for an area-wide closure APP would be prepared and submitted.
- On June 17, 2004, BHP filed an application for the area-wide closure of the Mine. This application was deemed "administratively complete" on September 14, 2004.
- A draft area-wide APP for mine closure was issued for public review in April 2006.
- ADEQ issued area-wide APP No. P-100421 for closure of the San Manuel Mine Site on June 30, 2006; this superseded the previous APP.

Facility Description

The San Manuel Mine operated 51 years from 1948 until underground operations were suspended on June 25, 1999. Mine closure was declared by BHP Copper, Inc. (BHP) to ADEQ on January 22, 2002. The Mine operated two underground mine units for copper sulfide ore, an open pit for copper oxide ore, heap leach and in-situ leaching operations that recovered copper-bearing pregnant leach solution (PLS), and a solvent extraction-electrowinning (SX-EW) Plant. The collection of PLS from the Heap Leach Facility ceased on March 19, 2002.

During operations, 702.9 million tons of rock were mined and hoisted to the surface, including 27.6 million tons of development rock, 624.9 million tons of ore from the San Manuel unit and 50.4 million tons of ore from the Kalamazoo unit. Approximately 121.5 million tons of ore and overburden were mined from the open pit. The copper ore from underground was crushed in a primary crusher at the Mine before shipment to the Plant Site for beneficiation and processing. The SX-EW Plant processed the PLS from the leaching operation.

The San Pedro River is the dominant surface water drainage feature in the region. The flow is intermittent in the vicinity of the mine and the Town of Mammoth, and depends on precipitation and base flow. Two ephemeral washes (Tucson Wash and Mammoth Wash) adjoin the Mine. With the exception of a limited area in the southeast portion of the No. 1 Stockpile, the entire Mine Site is above the 100-year floodplain.

Mine dewatering during the operating life of the underground mine resulted in formation of a significant cone of groundwater depression in the vicinity of the mine. Underground dewatering stopped on February 13, 2002. As of April 2006, the water level in the underground mine was 1,309 feet above mean sea level (amsl) or approximately 761 feet below the bottom of the open pit and 1,075 to 1,256 feet below the surrounding groundwater table. Facilities within the mine area are currently within a hydraulic sink for local groundwater flow. Groundwater is currently recovering at a rate of less than 0.3 feet per day as measured at the No. 5 Shaft.

Amendment Description

BHP initiated the significant amendment to close the Wood Landfill and the Solid Waste Landfills. This amendment is justified as the landfills were not included in an APP. In addition, the compliance schedule was updated with completion dates, permittee contact information was updated, and minor typographical revisions were made to the permit.

Closure Description

The permittee gave written notice to ADEQ of the permanent closure of the facility addressed in this permit in January 15, 2002. Following notification of closure, BHP Copper submitted for approval to the GWS, a detailed Closure Plan (Closure Plan Demonstration and Compliance Schedule) to meet the requirements of A.R.S. § 49-252 and A.A.C. R18-9-A209(B)(1)(a). The Closure Plan Demonstration addressed site clean up activities, facility demolition, materials remaining on site after closure, and the removal and disposal of hazardous waste materials. The Closure Plan Demonstration does not achieve clean closure as post-closure monitoring is required and because some of the facilities have not ceased discharge.

Individual BADCT closure and design plans for the waste rock dumps, Heap Leach Facility, and Diversion Structure were submitted to ADEQ, GWS (BHP Copper San Manuel Mine Site Design Report No. 1). The closure plans for facilities subject to BADCT methods were also addressed in Design Report No. 1. BHP submitted the BADCT closure design plans for the SX-EW Area, No. 1 Stockpile, and the perimeter areas in BHP Copper San Manuel Mine Site Design Report No. 2. All non-discharging and discharging facilities were closed between 2003 and May 2006 except for the In-Situ Mine and the future Pit Lake. A Closure Plan incorporating BADCT methods to close the Pit Lake and In-Situ Mine shall be submitted for approval to ADEQ, Groundwater Section according to the Engineering Compliance Schedule presented in Section 3.0, Table 1A of the permit.

The permittee has submitted a report regarding a numerical groundwater flow model (Appendix E – Numerical Groundwater Flow Model included as part of the General Information: Area-Wide Application for Closure of the San Manuel Mine Site, BHP Copper San Manuel Operations, Pinal County, Arizona, dated September 15, 2003) to ADEQ as part of the closure application. The report describes the model including the purpose of the model, a conceptual hydrogeologic model of the mine area, a general description of the model code used and the reason for selection of the code, the model design and criteria included in the design, the model calibration, a sensitivity analysis of the model parameters, and the model predictions.

II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

Facility BADCT descriptions are as follows:

Table 1B Facilities Subject to BADCT Requirements

ADEQ FACILITY NO.	BHP FACILITY NO.	FACILITY NAME	LATITUDE / LONGITUDE	POST-CLOSURE STATUS	BADCT REQUIREMENT
1	D-210A	No. 1 Stockpile	32º41'42.4" N 110º40'05.0" W	Facility to remain	The BADCT for closure of this facility shall include the following : - Characterization sampling conducted. - Remove sulfide material on side berms and consolidate to No. 1/No. 4 Waste Rock Dump or No. 3 Shaft Development Dump; - Re-grade side slopes to 3H:1V with all stormwater directed to erosion control structures; - Re-vegetate and provide erosion control.
2	D-210B	No. 1 Satellite Stockpile	32º41'42.4" N 110º40'05.0" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Increase No. 1 Satellite Stockpile footprint to accommodate 3H:1V configuration; - Re-grade side slopes to 3H:1V with all stormwater directed to stormwater structures or to the Open Pit; - Re-vegetate and provide erosion control.
3	D-211A	No. 1/No. 4 Shaft Waste Rock Dump	32º41'47.7" N 110º41'20.4" W	Facility to remain	The BADCT for closure of this facility shall include the following : - Characterization sampling conducted. - Expand footprint of existing dump with sulfide waste rock from Ridgeline Waste Rock Dump; - Place a soil cover of 2

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ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					feet over residual sulfide materials; - No soil cover was placed over the bedrock areas; - Re-grade to achieve approximate 3H:1V slope on exterior side-slopes to promote efficient runoff and manage long-term erosion - Re-vegetate slopes and provide erosion control.
4	D-211B	Ridgeline Waste Rock Dump	32º41'34.4" N 110º41'33.8" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Selectively remove sulfidic materials and relocate it to the No. 1/No. 4 Shaft Waste Rock Dump and No. 3 Shaft Development Dump, both within the Open Pit catchment area; - Re-grade remaining dump materials to provide an approximate 3H:1V slope; - Place a soil cover of 2 feet over the residual sulfide material; and - Re-vegetate slopes and provide erosion control.
9	D-267A	No. 3 Shaft Development Dump	32º41'05.1" N 110º41'31.3" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Expand footprint of existing dump with waste rock from the Ridgeline Waste Rock Dump and other waste

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ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					rock dump areas; -Re-grade to achieve approximate 3H:1V slopes for final dump configuration to stabilize slopes; - Place a soil cover of 2 feet over residual sulfide materials; and - Re-vegetate slopes and provide erosion control.
10	D-267B	Sulfide Ore Stockpile	32º41'22.2" N 110º41'30.6" W	Facility was removed	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Remove the Sulfide Ore Stockpile material and relocate materials to the No. 3 Shaft Development Dump.
11	D-267C	Red Hill Waste Rock Dump	32º41'22.2" N 110º41'30.6" W	Facility to remain	The BADCT for closure of this facility shall include the following : - Characterization sampling conducted. - Re-contour and re-vegetate the top portion of the Red Hill Waste Rock Dump after removal of the Sulfide Ore Stockpile; and - Provide surface water drainage on the top portion of the Red Hill Waste Rock Dump.
12	D-268	Main Gate Parking Lot Dump	32º40'54.6" N 110º41'48.8" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Re-grade side-slopes to a slope of 3H:1V; - Place soil cover of 2 feet over dump materials; and - Re-vegetate slopes and provide erosion

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ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					control.
7	D-262	Heap Leach Facility	32º42'05.9" N 110º40'40.0" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Maintain existing surface water run-on controls; - Extend existing HDPE liner with 60 mil HDPE north and south liner extensions including 1 foot of low permeability underliner and 1.5 feet of non-calcareous crushed rock overliner materials. - Separate storm water and drain-down solutions via a Heap Leach Facility perimeter channel for storm water and a toe drain system and Diversion Pipeline (part of Diversion Structure) for heap drain-down solutions; - Re-grade and re-contour heap leach materials to achieve approximate 3H:1V side slopes; - Place soil cover of 2 feet, and - Re-vegetate and provide erosion control. The Diversion Structure consists of a Diversion Channel and a Diversion Pipeline and is new construction as part of the closure of the Heap Leach Facility. The construction of the Diversion Structure includes the following: - Excavate earthen

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					Diversion Channel to open pit catchment area from the discharge end of the Heap Leach Facility; - Install a 24-inch diameter HDPE discharge pipeline (Diversion Pipeline) within the invert of the Diversion Channel to carry drain-down solutions to the escarpment area along the edge of the open pit. The pipeline discharge point is in San Manuel Formation which offers basic pH and acid-neutralization; - Place fill material over the Diversion Pipeline and armor the Diversion Channel for erosion control; - Incorporate management of spent process solution with the long-term, site-wide water management strategy and the closure plan for the In-Situ Mine and future Pit Lake.
5	D-251A	In-Situ Mine	32º41’ 35” N 110º40’ 48” W	Facility to remain	BADCT shall be determined in closure plan.
6	D-251B	(Future) Pit Lake	32º41’ 35” N 110º40’ 48” W	Facility to remain	BADCT shall be determined in closure plan.
8	C-263	Heap PLS Pond	32º42’05.9” N 110º40’40.0” W	Facility was removed	The BADCT for the closure of this lined facility shall include the following: - Characterization sampling conducted on residual materials on liner, - Remove free liquids from the pond (if present) through pumping and transfer to the heap leach surface;

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					- Salvage removable equipment; - Remove and dispose of solid residue on the synthetic liner; - Characterization sampling conducted on ground materials below the liner, - If contamination found under the liner, pull it back to accommodate excavation and disposal of contamination in the Heap Leach Facility, - Whether or not excavation of contamination is required from under the liner, the liner shall be folded into the base of the pond and buried' Backfill, including placement of low permeability capping material, shall be placed and graded to shed stormwater away from the site, - Re-vegetate and provide erosion control. - Incorporate remaining impoundment area into BADCT for Heap Leach Facility.
13	C-264	Plant Feed Pond	32º42'1" N 110º41'15" W	Facility was removed	- Remove and dispose of solid residue on the synthetic liner for these lined facilities; - Characterization sampling conducted on ground materials below the liner, - If contamination found under the liner, pull it back to accommodate excavation and disposal of contamination in the Heap Leach Facility,
14	C-265	Raffinate Pond	32º42'11" N 110º41'0" W	Facility was removed	
19	C-45	Julian's Catchment	32º41'20" N 110º41'45"W	Facility was removed	

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ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					- After the residual soil conditions meet applicable remediation standards, the liner shall be placed back into the excavation or be removed for appropriate disposal elsewhere, and the excavation backfilled. Backfill, including placement of low permeability capping material, shall be placed and graded to shed stormwater away from the site, - Re-vegetate and provide erosion control.
15, 16, and 17	C-8A; C-8B; C-8C	Upper, Middle, and Lower Hamilton Ponds	32º42'56" N 110º41'25" W	Facilities were removed	The BADCT for the closure of these lined facilities shall include the following: - Characterization sampling conducted, -Assessment and corrective action, if required, of potential soil contamination; - Abandon (cut and cap) storm water drains and redirect former dust-suppression water in a diversion ditch into the subsidence area; - Backfill former ponds and grade them to drain surface water runoff; - Cap pond area with a low permeability cover; and - Incorporate area in BADCT closure for the No. 3 Shaft Development Dump.
18	C-46	Dirkes Dike	32º41'48" N 110º41'48" W	Facility was removed	The BADCT for the closure of this unlined facility shall include the following:

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					- Characterization sampling conducted. -Assessment and corrective action, if required, of potential soil contamination; - Backfill former ponds and grade them to drain surface water runoff; - Cap pond area with a low permeability cover; and - Re-vegetate
20	C-200	Bunkhouse Wash	32º41'49"N 110º41'00"W	Facility was removed	The BADCT for the closure of these unlined facilities shall include the following: - Characterization sampling conducted - Assessment and corrective action, if required, of potential soil contamination; and -Grading to drain surface runoff and minimize infiltration of precipitation. - Incorporate closure into BADCT for No. 1/No. 4 Shaft Waste Rock Area.
21	NA	Wash Pad	NA	Facility was removed	The BADCT for this facility shall include the following: - Remove above-grade pumps and piping; - Drain and clean wash water collection areas; - Dispose of recovered oil (if present) and sediment according to characterization results indicating appropriate disposal to include disposal at the Heap Leach Facility. - Demolish superstructures and leave foundations at or below existing

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					ground surface; - Characterization sampling conducted to check potential contamination of the site, - Assess need for soil corrective action (oil and grease); - Penetrate concrete structures or elements that could accumulate water; - Cover foundation with suitable fill and grade slopes for drainage control; and - Re-vegetate area
22	C-97B	Oxide Truck Wash Pad	32º41'58"N 110º41'19"W	Facility was removed	The BADCT for this facility shall include the following: - Remove above-grade pumps and piping; - Drain and clean wash water collection areas; - Dispose of recovered oil (if present) and sediment according to characterization results indicating appropriate disposal to include disposal at the Heap Leach Facility. - Demolish superstructures and leave foundations at or below existing ground surface; - Characterization sampling conducted to check potential contamination of the site, -Assess need for soil corrective action (oil and grease); - Penetrate concrete structures or elements that could accumulate water;

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					- Cover foundation with suitable fill and grade slopes for drainage control; and - Re-vegetate area
23	C-214	Diesel Truckload Station	32º41'50"N 110º41'12"W	Facility was removed	The BADCT for this facility shall include the following: - Demolish superstructures and foundations and assess removal of contaminated materials; - Characterization sampling - Assess need for soil corrective action, - Backfill and place a soil cover of 2 feet over the facility site, and grade slopes for drainage control; 2-foot cover - Re-vegetate area
24	C-252	No. 1 Shaft (Temporary Heap Drain-down)	32º41'46"N 110º41'20"W	No longer receiving drain-down	The BADCT for this facility shall include the following: - Disconnect and remove pipeline delivering Heap drain-down to No. 1 Shaft, - Backfill the shaft, - Assess soil along the pipeline route for corrective action, - Excavate polluted soils and dispose in an appropriate manner, - Place concrete cap over No. 1 Shaft below grade, - Cover with fill and grade slopes for drainage control, - Re-vegetate area.
25	E-19	Wood Landfill	32º41'08"N 110º41'08"W	Facility to remain	The BADCT for this facility shall include the following: - Re-grade and contour slopes for drainage, - Place a soil cover no less than 30 inches over the facility site,

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					- Install berms and drainage channels to minimize ponding, - Re-vegetate area, - File restrictive covenant with Pinal County and ADEQ.
26	E-39	Solid Waste Landfill	32º41'07"N 110º41'20"W	Facility to remain	The BADCT for this facility shall include the following: - Re-grade and contour slopes for drainage, - Place a soil cover no less than 30 inches over the facility site, - Install berms and drainage channels to minimize ponding, - Re-vegetate area, File restrictive covenant with Pinal County and ADEQ.

III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

Monitoring and Reporting Requirements

All monitoring required in this permit shall continue for the duration of the permit, regardless of the status of the facility. Ambient groundwater monitoring has been completed in POC well CON E-3 and CR-1 and in AL wells BF-2 and BF-3. Proposed POC wells BK-1 and BK-2 shall be installed according to the Compliance Schedule and sampled annually. The alert levels (ALs) and Aquifer Quality Limits (AQLs) in these wells shall be the same as those set for POC well CON-E3.

Sampling and analysis of the spent process solution (Diversion Pipeline Monitoring Point), No. 5 Shaft water, and Pit Lake shall be performed on an annual basis. Methane monitoring will be conducted annually at the Solid Waste Landfill. Methane concentrations will be measured annually as probed, recorded, and reported to ADEQ in the annual report.

The facility monitoring during closure consists of site inspections, discharge monitoring, and monitoring groundwater recovery and groundwater quality.

Point(s) of Compliance

The monitoring requirements for each POC well are listed in Section 4.2 Table 1C of the permit. Monitoring requirements for the AL wells are listed in Section 4.2, Tables 1D and 1E of the permit.

CON E-3 was the POC well for the San Manuel Mine site under the previous APP and shall remain a POC well. In addition, CR-1 shall be a POC well and existing wells BF-2 and BF-3 shall be alert level wells. Two other POCs are designated: POC wells BK-1 and BK-2 shall be installed at those locations on or before 2012.

The POCs are established by the following monitoring locations:

TABLE 2.4 POINT OF COMPLIANCE AND ALERT LEVEL WELLS FOR THE SAN MANUEL MINE

Well Number	Designation	Cadastral Location	Latitude North	Longitude West	ADWR Number
POINTS OF COMPLIANCE (POC) FOR THE SAN MANUEL MINE					
BK-1 [1]	Hazardous/Non-hazardous	D(8-16)36bba	32° 42’ 07”	110° 39’ 55”	Pending
BK-2 [1]	Hazardous/Non-hazardous	D(8-16)36bdd	32° 41’ 39”	110° 39’ 36”	Pending
CON E-3	Hazardous/Non-hazardous	D(8-16)25cbb	32° 42’ 22”	110° 40’ 09”	55-534257
CR-1	Hazardous/Non-hazardous	D(8-16)27dab	32° 41’ 43”	110° 41’ 43”	55-582785
GAS MONITORING WELLS FOR THE SAN MANUEL MINE					
LFM1	Gas monitoring	N/A	32° 41’ 11”	110° 41’ 37”	N/A
LFM2	Gas monitoring	N/A	32° 41’ 14”	110° 41’ 31”	N/A
LFM3	Gas monitoring	N/A	32° 41’ 11”	110° 41’ 24”	N/A
ALERT LEVEL (AL) WELLS FOR THE SAN MANUEL MINE					
BF-2	Hazardous/Non-hazardous	D(8-16)35aaa	32° 41’ 54”	110° 40’ 20”	55-582786
BF-3	Hazardous/Non-hazardous	D(8-16)35aaa	32° 41’ 52.9”	111° 40’ 17.4”	55-208525

[1] BK-1 and BK-2 are new POC wells, which shall be installed in accordance with the terms specified in the Compliance Schedule in Section 3.0, Table 1A. The proposed approximate latitude and longitudes of BK-1 and BK-2 were approved by ADEQ in 2005. The cadastral, latitude and longitude coordinates and Arizona Department of Water Resources (ADWR) well registration numbers shall be amended to the permit following well installation.

Monitoring requirements for each POC is listed in Section 4.2, Table 1C of the permit.

Eight quarters of ambient groundwater monitoring have been completed in POC well CON E-3 and in AL wells BF-2 and BF-3. Ambient monitoring began in POC well CR-1 in December 2005. The eight ambient samples were completed by July 2006 and reported to ADEQ in August 2006. Each sample shall be analyzed for the parameters listed in Section 4.2, Table 1B of the permit. Proposed POC wells BK-1

and BK-2 shall be installed according to the Compliance Schedule in Section 3.0 of the permit. The alert levels (ALs) and Aquifer Quality Limits (AQLs) in these wells shall be the same as those set for POC well CON-E3.

The ALs for POC well CON E-3 and Alert Levels wells BF-2 and BF-3 have been calculated for parameters that have an established AWQS. AQLs have been calculated for CON E-3 for all required parameters that have an AWQS. ALs and AQLs shall be calculated for POC well CR-1 and the results submitted to GWS/APPDWU within 90 days of collection of the final ambient sample from the well.

IV. STORM WATER AND SURFACE WATER CONSIDERATIONS

The San Pedro River is the dominant surface water drainage feature in the region. The flow is intermittent in the vicinity of the Mine and the Town of Mammoth and depends on precipitation. Ephemeral washes, including the Tucson Wash and Mammoth Wash, adjoin the Mine. With the exception of a limited area in the southeastern portion of the No. 1 Stockpile, the entire Mine Site is above the 100-year floodplain.

Soil cover modeling was performed in 2002 to assess the effectiveness of reducing meteoric water infiltration into the rock dumps and Heap Leach Facility at the Mine Site. One foot of soil cover was determined to be the optimum thickness to reduce infiltration. Using more than one foot of soil cover was found to provide only negligible improvement in infiltration reduction owing to the nature of heap management.

The remediation plan for the waste rock dumps and Heap Leach Facility incorporated the use of a soil cover to minimize storm water infiltration and to produce clean storm water run off. Two sources of borrow materials were identified at the Mine for reclamation.

Facilities have been designed, constructed, and will be maintained to contain the maximum volume of storm water stored and contained in a facility during normal conditions plus the maximum volume resulting from a 10-year, 24-hour precipitation event. The sulfide material in the Ridgeline Waste Rock Dump was partially removed and the slopes were regraded to a 3:1 slope. The remaining material was covered with borrow material to allow runoff of unimpacted storm water to Tucson Wash. BHP intends to file a Notice of Termination and exit the Storm Water Program once it obtains a release under the Mined Land Reclamation Program.

V. COMPLIANCE SCHEDULE

For each compliance schedule item listed below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Groundwater Section. A copy of the cover letter must also be submitted to the Water Quality Compliance Section.

COMPLIANCE SCHEDULE - ENGINEERING

COMPLIANCE PLAN SUBMITTAL		
ANNUAL MONITORING REPORT FOR PIT LAKE AND IN-SITU MINE FACILITIES	Submit an annual report to ADEQ, GWS, describing the performance of the work associated with operation and maintenance of the selected option, the extent of groundwater recovery within the open pit, the quality of groundwater in the open pit and underground mine, the costs of maintenance and operation during the period, any modifications made or proposed to the approved plan, and a demonstration of continued compliance with AWQS at the POCs.	Submit annually, by June 30th each year
DESIGN REPORT NO. 3	BHP shall submit to ADEQ, GWS, three copies of a work plan pertaining to the work as referenced. Following work plan approval, BHP shall prepare the referenced report, including capital and operating costs, and submit three copies to ADEQ, GWS. The contents shall include items, such as but not be limited to, the following: - As follow-up to the BADCT selection work under the *General Closure Plan and Cost Estimate for the Pit Lake and In-Situ Mine Facilities* in this Compliance Schedule, provide additional detail representing the selected design for construction. Include plans, reports, and maps for the selected closure BADCT, including analysis of cost vs. discharge reduction for comparison of various DCTs considered. - For the selected BADCT option, prepare conceptual engineering design and construction plans with management protocols for long-term water management of the Pit Lake, if needed, based on the outcome of the *General Closure Plan and Cost Estimate* referenced above in the Compliance Schedule.. - The "as-built" report for this work shall be submitted to ADEQ, GWS within 3 months following completion of the construction work referenced in *Design Report No. 3*.	Design Report No. 3 shall be submitted sixty (60) days prior to work construction.

COMPLIANCE SCHEDULE – HYDROLOGY

COMPLIANCE PLAN SUBMITTAL	DESCRIPTION GENERAL CLOSURE OBJECTIVE	SUBMITTAL DATE
POINT OF COMPLIANCE (POC) WELLS		
Installation of POC Wells BK-1 and BK-2	POC wells BK-1 and BK-2 shall be installed when one of the following conditions is met: 1. The water level in the mine reaches an elevation of 1,865 feet amsl. 2. An upward trending hydraulic pressure is observed in transducer well BF-1. 3. An AL is exceeded in either BF-2 or BF-3 for three consecutive quarterly sampling events. 4. No later than January 1, 2012. Changes to this approved plan shall be reviewed and approved by ADEQ according to the following guidelines: ▪ Each well shall be installed in accordance with ADWR requirements; ▪ The well casing shall have an OD of no less than 4 inches. ▪ Each well shall be screened within the uppermost aquifer. ▪ Well screen shall be no longer than 100 feet in length. The logs shall include the ADWR well registration number and the "as-built" cadastral and latitude and longitude coordinates for the well.	Per requirement of Section 2.4 or by January 1, 2012
Compliance Groundwater Monitoring in POC BK-1 and BK-2	Conduct annual groundwater monitoring in accordance with the schedule in Section 4.2, Table 1C. All annual samples shall be collected within the first calendar quarter of each year. Beginning with the first calendar quarter following well installation, and thereafter, annually during the first calendar quarter of each year. Annual compliance groundwater monitoring shall monitor for all parameters listed in Section 4.2, Table 1C to verify compliance of AWQS at the designated POC. Following completion of each annual event the permittee shall submit copies of SMRFs for each well to ADEQ WQCS-DU according to the schedule in Section 2.13.5.	Submit an annual groundwater monitoring report to the GWS by May 1st of each year.

COMPLIANCE SCHEDULE – HYDROLOGY

COMPLIANCE PLAN SUBMITTAL	DESCRIPTION GENERAL CLOSURE OBJECTIVE	SUBMITTAL DATE
DRAINDOWN FROM HEAP LEACH FACILITY		
Monitoring of Draindown Water Quality from the Heap Leach Facility.	The permittee shall submit an annual report to GWS containing the laboratory analytical results from the sample of draindown water from the Heap Leach Facility. The sample shall be collected from sampling weir in the Diversion Pipeline Monitoring Point (near the inlet to the Diversion Pipeline). The sample shall be analyzed for the parameters listed in Section 4.2, Table 1F.	Twelve (12) months from the effective date of APP No. P-100421, and every twelve months thereafter.
No. 5 SHAFT AND PIT LAKE		
Monitoring of Water Level Elevations and Water Quality in the No. 5 Shaft and in the Pit Lake (if a pit lake has formed).	The permittee shall submit an annual report to GWS that includes the elevation of the water level in the No. 5 Shaft and the elevation of the Pit Lake, if formed. The report shall include a graph showing the current water level elevation in relation to the past water level measurements and a comparison to the levels predicted by the 2003 numerical flow model or a revised model. In addition, the permittee shall collect a sample of the water in the No. 5 Shaft and in the Pit Lake, if a pit lake is formed, and analyze the sample for the parameters listed in Section 4.2, Table 1F. The laboratory analytical results from the water sample(s) shall be included in the annual report.	Twelve (12) months from the effective date of APP No. P-100421, and every twelve months thereafter.

VI. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT

Technical Capability

BHP Copper, Inc. has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202(B).

ADEQ requires that appropriate documents be sealed by an Arizona registered geologist or professional engineer. This requirement is a part of an on-going demonstration of technical capability. The permittee is expected to maintain technical capability throughout the life of the facility.

Financial Capability

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The estimated closure and post-closure costs are 29.2 million dollars, and $100,000 per year, respectively. The closure has been completed and only the post-closure cost of $100,000 per year remains to be satisfied for financial

assurance. The financial capability was demonstrated pursuant to A.A.C. R18-9-A203(B)(1), utilizing a statement dated July 15, 2003, from Mr. Mike McGowan, Controller, BHP Copper Inc., San Manuel Operation, indicating that BHP is financially capable of meeting the closure and post-closure cost obligation for the San Manuel Mine site. This statement is supplemented by the current annual report for BHP's parent company, BHP Billiton.

Zoning Requirements

Mining activity of greater than five contiguous acres is exempt from zoning requirements pursuant to A.R.S. § 11-830.

VII. ADMINISTRATIVE INFORMATION

Public Notice (A.A.C. R18-9-108(A))

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

Public Comment Period (A.A.C. R18-9-109(A))

The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

Public Hearing (A.A.C R18-9-109(B))

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

VIII. ADDITIONAL INFORMATION

Additional information relating to this proposed permit may be obtained from:
Arizona Department of Environmental Quality
Water Quality Division – APP & Drywell Unit
Attn: Steve Vevang
1110 W. Washington St., Mail Code: 5415B-3
Phoenix, Arizona 85007
Phone: (602) 771- 4621